

1998 Pantex Plant Annual Epidemiologic Surveillance Report

PANTEX 1998
Epidemiologic Surveillance Report

Questions or comments about this report or the Epidemiologic Surveillance Program may be directed to:

Dr. Cliff Strader at **cliff.strader@eh.doe.gov**
or Dr. Bonnie Richter at **bonnie.richter@eh.doe.gov**
United States Department of Energy
Office of Epidemiologic Studies
Mail Stop: 270CC/EH-62
19901 Germantown Road
Germantown, MD 20874-1290

Additional information about the Department of Energy's Office of Epidemiologic Studies, the Epidemiologic Surveillance Program, and annual reports for DOE sites participating in this program can be found at:

<http://www.eh.doe.gov/epi/surv>

PANTEX 1998

At a Glance

Male workers lost 2,465 calendar days of work due to illness and injury in 1998. The leading causes of absence were due to muscle and skeletal conditions (19 percent), digestive conditions (15 percent), and injuries (14 percent).

Female workers lost 1,774 calendar days of work due to digestive conditions (18 percent), muscle and skeletal conditions (18 percent), genitourinary conditions (11 percent), injuries (10 percent) and respiratory conditions (10 percent).

There was a 43 percent decrease in the number of reported absences between 1997 and 1998. This number has been steadily declining since 1996. Part of the decrease was related to changes in reporting practices.

The risk of illness and injury continues to be highest among Service workers, Production Technicians, and Material Handlers.

Injuries, primarily sprains and strains, were the most common OSHA-recordable diagnoses (directly attributable to work) among men and women.

Introduction	1	Most Frequently Reported Diagnoses by Job Category and Gender	8
Site Overview	2		
The Pantex Work Force - 1998	3	Rates of Disease Occurrence	9
The Work Force by Gender and Age.....	3	Illness and Injury Rates by Job Category, Gender, and Age	10
The Work Force by Job Category and Gender.....	3	Time Trends	12
Number and Length of Absences	4	Age-Adjusted Rates for Selected Diagnostic Categories for Women and Men from 1994 to 1998.....	13
Absence Rate by Gender and Age.....	4	Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1998.....	14
Number of Days Absent by Gender and Age.....	5	Sentinel Health Events for Occupations	15
Absence Rate by Job Category and Gender.....	5	Characteristics of SHEOs by Gender.....	15
Average Duration of Absence by Job Category and Gender	6	Disabilities Among Active Workers	16
Diagnostic Categories	6	Deaths Among Active Workers	16
Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender	7		

OSHA-Recordable Events 16

OSHA-Recordable Events by
Gender and Age..... 16

OSHA-Recordable Events by
Job Category and Gender 17

**Diagnostic and Accident
Categories for OSHA-
Recordable Events**..... 17

OSHA-Recordable Diagnoses
by Diagnostic Category
and Gender 17

OSHA-Recordable Accidents
by Type and Gender 18

**Rates of OSHA-
Recordable Events**..... 18

OSHA-Recordable Rates by
Age and Job Categories
Among Women 18

OSHA-Recordable Rates by
Age and Job Categories
Among Men..... 19

**Time Trends for OSHA-
Recordable Events**..... 19

Age-Adjusted Rates for All
OSHA-Recordable Diagnoses
Among Women by Job
Category from 1994
to 1998..... 19

Age-Adjusted Rates for All
OSHA-Recordable Diagnoses
Among Men by Job Category
from 1994 to 1998..... 19

Glossary 20

**Explanation of Diagnostic
Categories**..... 21

ICD-9-CM Codes..... 22

Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. The Epidemiologic Surveillance Program monitors illnesses and health



conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

Epidemiologic surveillance has been ongoing at Pantex since 1994. This report provides a summary of epidemiologic surveillance data collected from the Pantex Plant from January 1, 1998 through December 31, 1998. The data were collected by a coordinator at Pantex and submitted to DOE's Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Epidemiologic Studies.

The information presented in this report provides highlights of the data analyses conducted on the 1998 data collected from Pantex. Earlier surveillance reports and additional supporting tables are posted on the Office of Epidemiologic Studies' Web Site

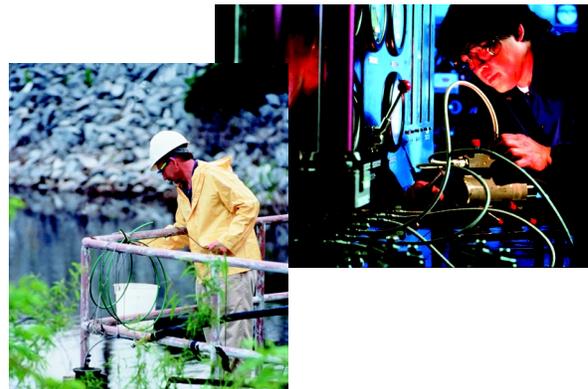
(<http://www.eh.doe.gov/epi/surv>) or are available by request.

The main sections of the report include: work force characteristics; absences due to injury or illness of 5 or more consecutive workdays; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The 1998 report includes sections on time trends that provide comparative information on the health of the work force from 1994 to 1998.



Note: In the figures and calculations that follow, percentages have been rounded to the nearest whole number.

DOE sites vary by mission, function, job classification, and worker exposures. Therefore, comparisons of Pantex with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported at the sites, thereby affecting the observed patterns of illness and injury.



Site Overview

The Pantex Plant, located on the Texas Panhandle 17 miles northeast of Amarillo, was constructed in 1942 to serve as a conventional bomb plant for the U.S. Army. The plant was deactivated when World War II ended and remained vacant until 1949 when Texas Technological University purchased the site for \$1 for experimental cattle-feeding operations. The land was sold subject to recall under the National Security Clause, and the Atomic Energy Commission requested the Army to reclaim and reopen the site in 1951 in order to expand nuclear weapons assembly facilities. By 1975, the Pantex Plant became

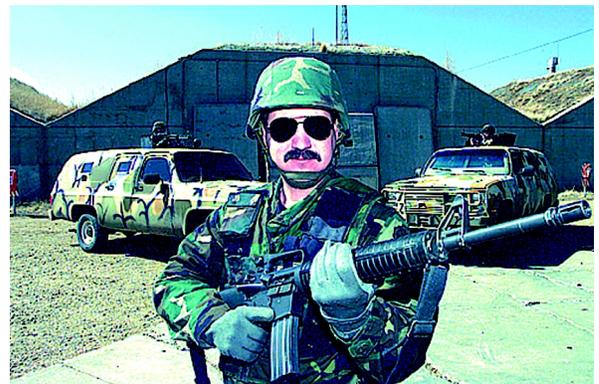


the only nuclear weapons assembly and disassembly plant in the U.S. With the downsizing of the DOE complex, the site assumed new responsibilities. Interim storage of plutonium pits was transferred to the plant in 1989 when a plutonium processing center was deactivated. With the easing of political tensions between the United States and the former Soviet Union in the 1990's, efforts began to reduce nuclear stockpiles. The disassembly of nuclear weapons at the Pantex Plant became a vital part of this operation.

Currently, the Pantex Plant has five primary operational missions: weapons assembly, weapons disassembly, evaluation of weapons, high explosive research



and development, and interim plutonium pit storage. The *Final Environmental Impact Statement for the Continued Operations of the Pantex Plant and Associated Storage of Nuclear Weapons Components* was approved in January 1997, by the Secretary of Energy Hazel O'Leary. The Environmental Impact Statement authorized the Pantex Plant to maintain the plant's current dismantlement mission and increase onsite interim storage of plutonium components. It is anticipated that the plant will downsize as weapons dismantlement work decreases over the next 10 years.



The current contractor, Mason and Hanger, took over the management and operating functions on October 1, 1996.

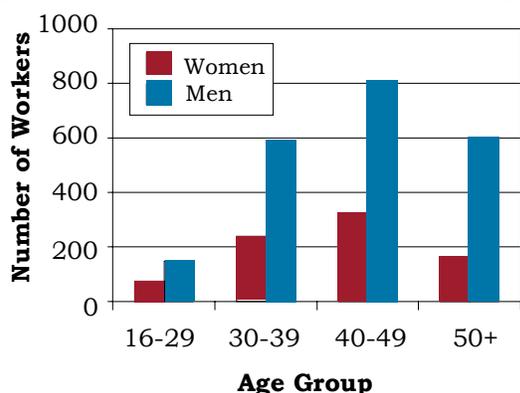
The Pantex Work Force - 1998

A total of 2,934 Pantex employees were included in epidemiologic surveillance in 1998, 428 fewer workers than were present in 1997. The age and gender distribution of the 1998 work force is shown in Figure 1. There were



795 (27 percent) women and 2,139 (73 percent) men in the work force. The average age of male Pantex workers was 44 years of age and 42 years for females.

Figure 1. The Work Force by Gender and Age



The majority of the workers were White (80 percent). Hispanics comprised 11 percent and African Americans about 6 percent of the work force; Asians and Native Americans made up the remaining 3 percent.

The distribution of workers by job category and gender is shown in Figure 2. Individual job titles, as reported by Pantex, were grouped together into 11 job categories. This is because there were either too few workers or health events within a particular job title, thereby limiting the type of analyses that could be conducted. Men and women

were not distributed equally among the various occupational groups. Over half of the women at Pantex were in the Office Management and Administration job category; less than one-fourth of the men were in this group. Almost a third of the men were Security or Technical Support workers.

Two new job title categories were defined in the 1998 report; Heavy Computer User and workers assigned to the Fire Department. A Heavy Computer User is defined as a worker who types 8 hours or more per day. This category includes technical writers, computer programmers, data entry clerks, and other workers whose job requires them to type more than 70 percent of their time per day. Workers in the Fire Department are analyzed separately as they are a high-risk group for sprains, strains, and lower back pain from carrying heavy objects, and are susceptible for working beyond the fatigue threshold.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Office Management & Administration	412 52%	484 23%
Engineering, Scientific, & Health Care	51 6%	275 13%
Technical Support	120 15%	324 15%
Heavy Computer Users	38 5%	49 2%
Service	23 3%	23 1%
Security	52 6%	350 17%
Craft & Repair	7 1%	255 12%
Fire Department	5 1%	45 2%
Nuclear Specialties	16 2%	28 1%
Production Technicians	48 6%	218 10%
Material Handlers	23 3%	88 4%

Number and Length of Absences

Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as “5-day absences”). It is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or



more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident also must be reported. Non-occupational illnesses and injuries that involve absences less than 5 days do not routinely require a medical clearance for return to work and are therefore excluded from these analyses.

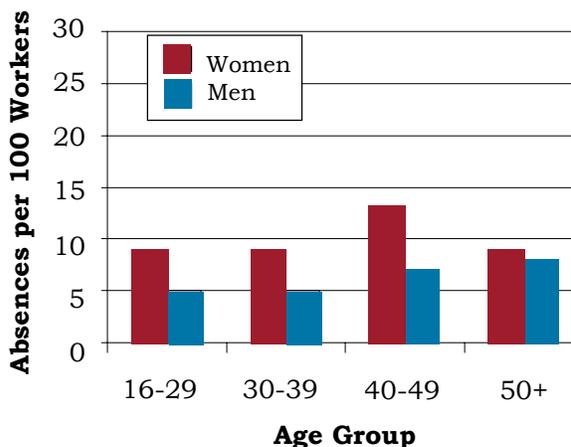
Certain types of health events resulting in an absence of 5 or more consecutive workdays were excluded from the analyses. These include 12 absences due to maternity leave and 3 reported absences due to elective surgical procedures not related to the treatment of an illness or injury among two women and one man.

Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors.

The rate of 5-day absences due to injury or illness varied by gender and

age as shown in Figure 3. There were 84 5-day absences among 795 women resulting in an absence rate of 11 per 100 workers (84/795). There were 139 absences among 2,139 men resulting in an absence rate of 6 per 100 workers (139/2,139). The rate of 5-day absences among men increased slightly with age. Among women, the highest absence rate was in the 40-49 year age group. Less than 1 percent of men and women reported more than one 5-day absence in 1998. The 223 absences reported in 1998 represent a 43 percent decrease from the 391 absences reported in 1997.

Figure 3. Absence Rate by Gender and Age



The average length of absence by gender and age is shown in Figure 4. The average length of absence was 18 days for men and 21 days for women. The average duration of absence was not related to age among men, but increased with age among women.

The rate of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. No pattern was seen between the rate of absence between men and women within a similar job category. Among men, Service workers had the highest absence rate, 17 per 100 (4/23), while those in the Fire Department had the lowest absence rate, 2 per 100 workers (1/45).

Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	7	101	14
	30 - 39	22	368	17
	40 - 49	41	748	18
	50 +	14	557	40
	Total	84	1,774	21
Men	16 - 29	8	101	13
	30 - 39	30	565	19
	40 - 49	53	899	17
	50 +	48	900	19
	Total	139	2,465	18

Among women, Material Handlers had the highest absence rate, 22 per 100 workers (5/23). Female Craft and Repair workers had no 5-day absences in 1998, a trend that continues from 1997, however there were only seven women in that job category.

The average duration of absence by job category and gender is shown in Figure 6. There was no consistent pattern for average absence duration among men and women within a job category.

Although Service workers had the highest rate of 5-day absences among men, the average duration of their absences, 15 days, was less than the average for all male workers. Male Production Technicians had the longest average number of days absent, 25 days, while Heavy Computer Users had the shortest average absence duration (12 days). Among female workers, Service workers had the longest average absence, 83 days; however, only one absence was reported in this group. Women in the Office Management and Administration (23 days) and Technical Support (21 days) groups had the next longest absence duration. Female Heavy Computer Users averaged the shortest absences, 9 days.

Figure 5. Absence Rate by Job Category and Gender

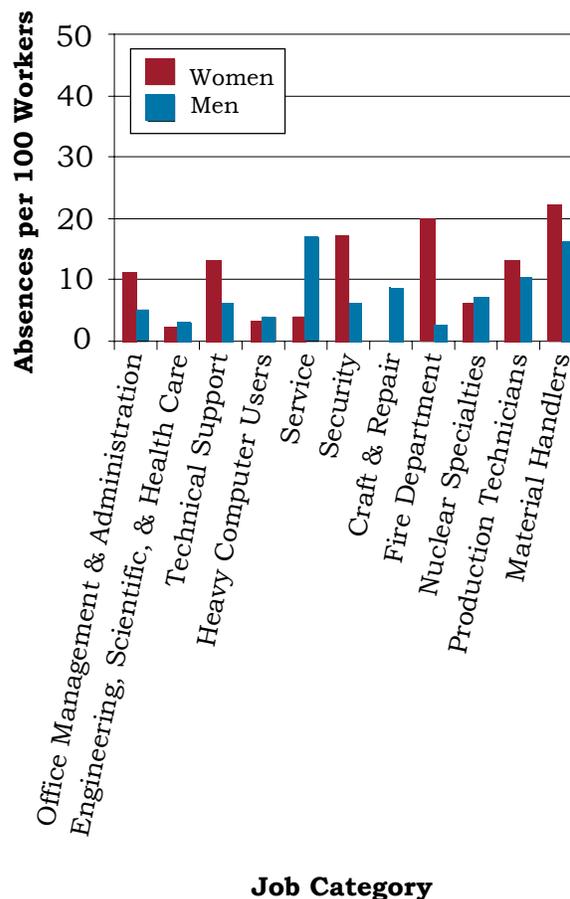
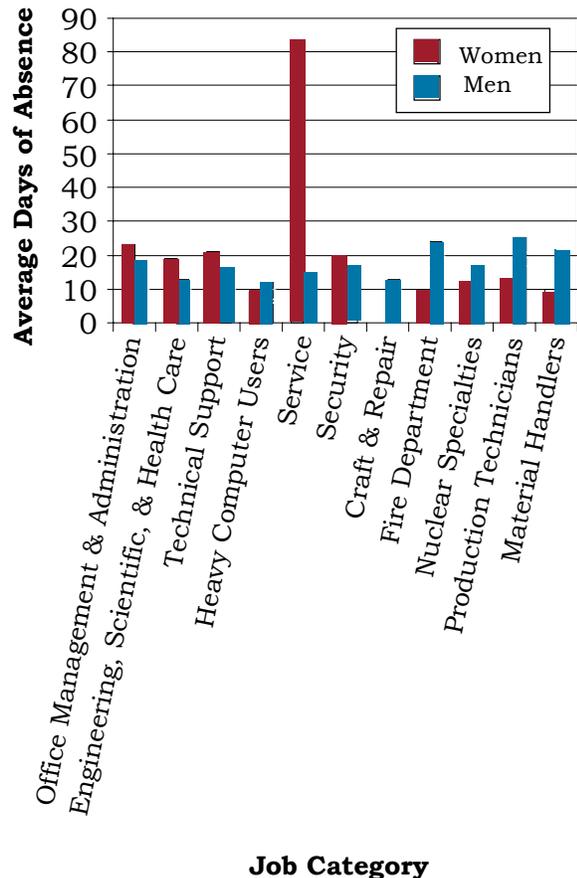
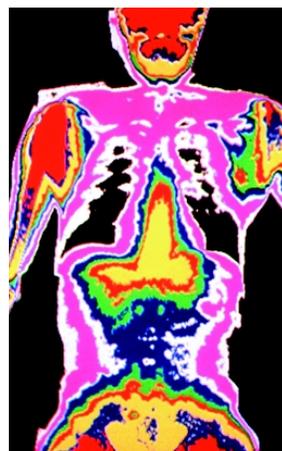


Figure 6. Average Duration of Absence by Job Category and Gender

Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers, because it is not always possible to determine what health effects are due to occupational exposures and what are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than one diagnosis, and epidemiologic surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational injuries and illnesses whether or not they involve absences.

This report organizes illness and injury categories based on a standard reference, the *International Classification of Disease, 9th Revision, Clinical Modification (ICD-9-CM)*. This reference is used to classify health events for statistical

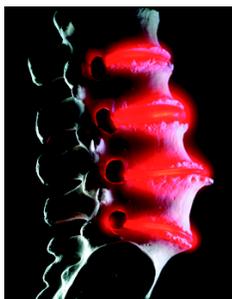


purposes. You can find specific health conditions in the Explanation of Diagnostic Categories at the back of this report.

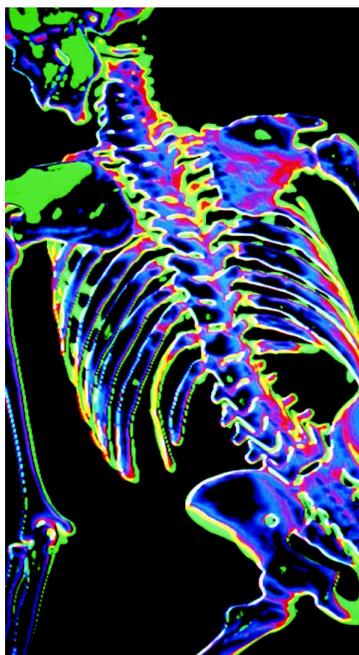
The number of reported diagnoses categorized according to the ICD-9-CM and number of lost calendar days are presented in Figure 7. Please note that the number of days absent, when there are multiple diagnoses during an absence, are counted more than once. There were 109 diagnoses reported by female workers and 184 diagnoses reported by male Pantex workers in 1998. The most frequently reported diagnoses varied little by gender.

Female employees lost a total of 1,774 calendar days due to injury and illness. Among women, digestive conditions (18 percent), muscles and skeleton conditions (18 percent), genitourinary diseases (11 percent), injuries (10 percent), and respiratory conditions (10 percent) accounted for 67 percent of all reported diagnoses. A closer look at diagnoses affecting the digestive system showed that 50 percent were related to conditions of the liver and gallbladder and 20 percent to gastroenteritis and colitis. Back pain and disk injuries made up 40 percent of muscle and skeletal conditions, followed by rheumatism (35 percent) and arthritis (20 percent).

All of the genitourinary conditions were related to female reproductive disorders. Forty-five percent of the injuries were reported as sprains and strains and 27 percent were reported as fractures. The majority of the respiratory conditions were due to acute upper respiratory type infections (55 percent), followed by flu and pneumonia (18 percent) and bronchitis (18 percent).



Men lost 2,465 calendar days due to injury and illness. Among male workers, 48 percent of all reported diagnoses were due to muscle and skeletal conditions (19 percent), digestive conditions (15 percent), and injuries (14 percent). A



closer look at diagnoses affecting the muscles and skeleton showed that about 43 percent were disc disorders and back problems, 29 percent were arthritis, and 20 percent were rheumatism. Frequently reported injuries were

sprains and strains (42 percent), fractures (15 percent), open wounds (12 percent), and burns (12 percent). Liver and gallbladder disease (37 percent) and hernias (26 percent) accounted for the majority of the digestive diagnoses.

Figure 7. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	0	0	2	47
Blood	0	0	3	61
Cancer	4	43	2	164
Digestive	20	391	27	454
Endocrine / Metabolic	2	18	2	20
Existing Birth Condition	1	11	0	0
Genitourinary	12	321	2	16
Heart / Circulatory	6	88	23	378
Infections / Parasites	2	14	4	40
Injury	11	206	26	465
Miscarriage	1	11	NA	NA
Muscles and Skeleton	20	837	35	773
Nervous System	7	85	10	154
Psychological	5	82	4	61
Respiratory	11	156	16	185
Skin	1	21	3	35
Unspecified Symptoms	6	118	25	316

Note: Lost calendar days for each diagnosis are counted more than once if there are multiple diagnoses per absence.

The previously mentioned diagnoses did not vary much by age for men or women. Injuries, conditions affecting the digestive system, and diagnoses of the muscles and skeleton were among the more frequently reported categories for all men. Among workers 50 years and older, conditions of the heart/circulatory system were the most frequently reported diagnoses. Twelve men in this age group reported 17 diagnoses; 76 per cent for hypertension and ischemic heart



disease (restricted blood flow to an artery). Heart/circulatory conditions were also common among women 50 years and older. Two women in this age group reported two diagnoses; one for cerebrovascular disease and the other for atherosclerosis.

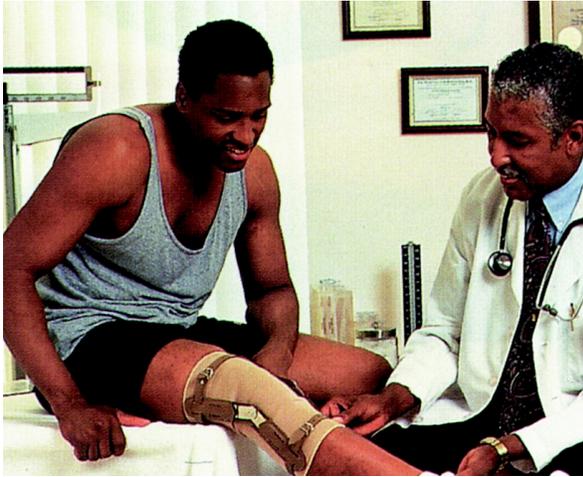
Figure 8 shows the frequency of reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Among men, muscle and skeletal conditions, injuries, and digestive conditions appeared frequently in most occupational groups. Nervous system disorders were frequently reported among men in the Office Management and Administration and Service groups.

Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Office Management & Administration	Muscles and Skeleton (9) Digestive (4) Heart/ Circulatory (4) Nervous System (4)	Muscles and Skeleton (13) Digestive (8) Genitourinary (6)
Engineering, Scientific, & Health Care	Digestive (6) Respiratory (2) Unspecified Symptoms (2)	Digestive (1)
Technical Support	Digestive (6) Heart/ Circulatory (4) Unspecified Symptoms (3)	Digestive (5) Respiratory (4) Muscles and Skeleton (3)
Heavy Computer Users	Digestive (1) Unspecified Symptoms (1)	Nervous System (1)
Service	Nervous System (2) Cancer (1) Injury (1) Respiratory (1)	Digestive (1)
Security	Injury (9) Muscles and Skeleton (5) Unspecified Symptoms (3)	Genitourinary (4) Digestive (2) Injury (2) Respiratory (2) Nervous System (2)
Craft & Repair	Muscles and Skeleton (7) Heart/ Circulatory (6) Unspecified Symptoms (6) Injury (4)	None
Fire Department	Muscles and Skeleton (1)	Injury (1)
Nuclear Specialties	Heart/ Circulatory (1) Injury (1)	Digestive (1)
Production Technicians	Injury (6) Muscles and Skeleton (6) Heart/ Circulatory (5)	Injury (3) Digestive (2) Heart/ Circulatory (2) Muscles and Skeleton (2)
Material Handlers	Unspecified Symptoms (6) Muscles and Skeleton (5) Digestive (4)	Cancer (1) Genitourinary (1) Respiratory (1) Muscles and Skeleton (1) Nervous System (1)

Note: Numbers in parentheses are number of diagnoses reported.

Three men in the Office Management and Administration group reported four diagnoses: three for eye disorders and one for Bell's Palsy (a facial nerve disorder).



One man in the Service group had two diagnoses for carpal tunnel. Among women, injuries, muscle and skeletal conditions, digestive diagnoses, and genitourinary disorders were common.



Rates of Disease Occurrence

A Word about Rates: The previous section considered the number of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 26 and women reported 11 diagnoses involving injuries during 1998. Men, therefore, reported more than twice as many injuries as women. As there are more than 2 1/2 times as many men than women at Pantex, it seems reasonable to expect more injuries among men than women. Does this mean that men were at greater risk of injuries compared with women in 1998? To correctly answer that question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the injury rate for each gender. Rates are calculated by dividing the number of injury diagnoses in a given gender by the total number of employees of that gender. Multiply this number by 1,000 to get the diagnosis rate per 1,000 workers.

For example:

$$26 \text{ injury diagnoses} \div 2,139 \text{ men} = .012 \times 1,000 =$$

$$12 \text{ injury diagnoses per 1,000 men}$$

$$11 \text{ injury diagnoses} \div 795 \text{ women} = .014 \times 1,000 =$$

$$14 \text{ injury diagnoses per 1,000 women}$$

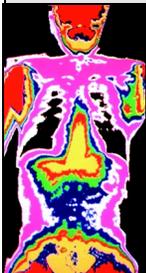
Comparing these rates now correctly suggest that the rate of reported injuries among women is slightly higher than the rate for men. They are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's risk of having an injury. Because age is so strongly related to the risk of disease and injury, epidemiologists almost always take age into account when comparing groups. This is done by using age-specific categories or by statistical methods of adjustment.

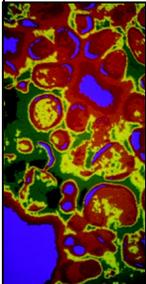
The diagnosis rate, also called the illness and injury rate is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day absences over a year. Conversely, one 5-day absence may be associated with multiple diagnoses (e.g., the flu and a sprained wrist) recorded for epidemiologic surveillance.

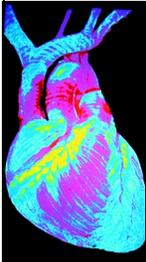
In the following set of analyses, the four age groups previously used were collapsed into two: workers less than 50 years of age and those 50 or older. In addition, the 11 job categories were combined into four larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all illnesses and injuries combined; cancer; heart/circulatory system; respiratory system; and injuries.

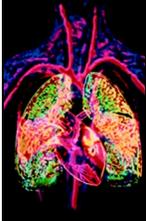
The rates for all illnesses and injuries combined were generally higher for male Pantex workers ages 50 and older compared with males younger than 50.

Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration/Heavy Computer Users	<50	63	127
		50+	53	107
	Engineering, Scientific, & Health Care/Technical Support	<50	54	142
		50+	63	43
	Service/Security/Craft & Repair/Fire Dept.	<50	69	195
		50+	179	100
	Nuclear Specialties/Production Technicians/Material Handlers	<50	134	203
		50+	250	111

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration/Heavy Computer Users	<50	0	9
		50+	0	0
	Engineering, Scientific, & Health Care/Technical Support	<50	0	0
		50+	0	0
	Service/Security/Craft & Repair/Fire Dept.	<50	0	0
		50+	7	0
	Nuclear Specialties/Production Technicians/Material Handlers	<50	0	0
		50+	11	56

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration/Heavy Computer Users	<50	8	6
		50+	6	9
	Engineering, Scientific, & Health Care/Technical Support	<50	2	7
		50+	16	0
	Service/Security/Craft & Repair/Fire Dept.	<50	0	0
		50+	40	0
	Nuclear Specialties/Production Technicians/Material Handlers	<50	8	14
		50+	80	56

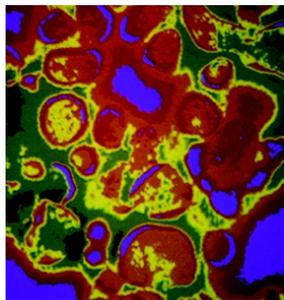
Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration/Heavy Computer Users	<50	3	12
		50+	0	0
	Engineering, Scientific, & Health Care/Technical Support	<50	10	27
		50+	0	0
	Service/Security/Craft & Repair/Fire Dept.	<50	6	26
		50+	20	0
	Nuclear Specialties/Production Technicians/Material Handlers	<50	20	14
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration/Heavy Computer Users	<50	6	9
		50+	6	9
	Engineering, Scientific, & Health Care/Technical Support	<50	5	7
		50+	0	0
	Service/Security/Craft & Repair/Fire Dept.	<50	19	39
		50+	26	0
	Nuclear Specialties/Production Technicians/Material Handlers	<50	20	43
		50+	23	0

Among females, rates were higher for employees younger than 50 compared to female workers age 50 and older. Women aged less than 50 generally had the highest rates within a job category. The highest rates were for men and women classified as Nuclear Specialties/Production Technicians/Material Handlers.

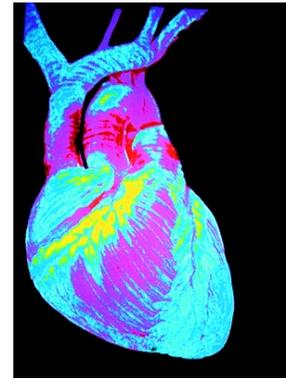
Cancer rates presented in this report are based on reported 5-day absences during the year. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis; however, it does not imply that this is a new cancer. The cancer rates in this report are not comparable to the incidence rates frequently published in many articles on cancer with which you may be familiar. Incident cancer rates are based on the number of new cancer cases diagnosed within a given time, usually a year.

The likelihood that an individual in the U.S. develops cancer increases with age. Our data reflect this observation for men; cancer rates in all occupational categories were highest among older workers. Two men reported two 5-day absences due to cancer; there was one kidney cancer and one unspecified site. One man had reported the same cancer in 1997. Cancer rates were not related to age for female workers. Two women reported four diagnoses for cancer. Two of the diagnoses were for respiratory cancer, one was for breast



cancer, and one for a secondary site. One woman reported the same cancer previously in 1996 and 1997.

Men ages 50 or more generally had the highest rates of heart and circulatory problems. Men categorized as Nuclear Specialties/Production Technicians/Material Handlers had the highest rate of heart and circulatory disorders. Twelve of the 18 men reporting heart/circulatory disorders were aged 50 and older; 13 of 17 diagnoses among these older workers involved hypertension or ischemic heart disease (restricted blood flow through an artery). There were six diagnoses for heart and circulatory problems among women; three for hypertension and ischemic heart disease, and one each for atherosclerosis, cerebrovascular disease, and hemorrhoids. Material Handlers were over 3 times more likely to report these types of conditions compared to other workers.



Generally, only workers under age 50 reported respiratory disease diagnoses with the exception of males aged 50 or more, categorized as the Service/Security/Craft and Repair/Fire Department group. For female workers, Engineering, Scientific, and Health Care/Technical Support and Service/Security/Craft and Repair/Fire Department workers had the highest rates. Service/Security/Craft and Repair/Fire Department and Nuclear Specialties/Production Technicians/Material Handlers groups had the highest rates, 20 per 1,000, among male workers.

Injury rates were highest for younger female workers, but there was no consistent pattern with age and the rate of injury diagnoses among men. The highest rates of injury for men and



women were in the Service/Security/Craft and Repair/Fire Department and the Nuclear Specialties/Production Technicians/Material Handlers categories. Production Technicians were over 3 times more likely to report an injury than other groups.

In a different set of analyses, the risk of illness and injury among workers classified in one job category was compared with the risk to workers in the other 10 job categories. Material Handlers were at over twice the risk compared to all other groups.



Time Trends

Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition among groups of workers are taken into consideration in the analyses and one rate is calculated for an entire group. This allows us to make comparisons between different groups of different ages. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

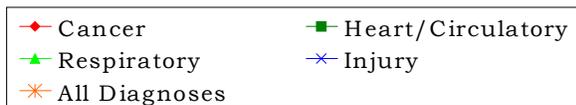
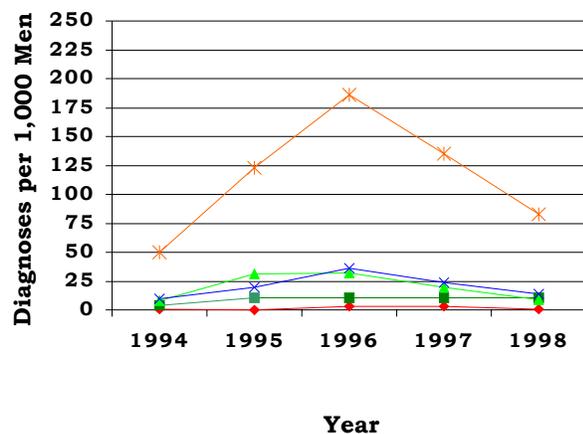
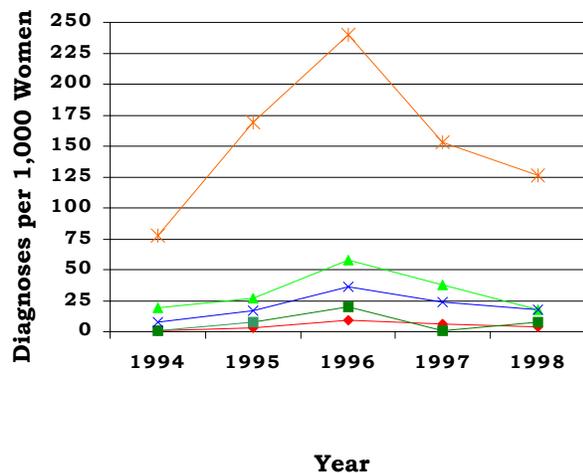
Age-adjusted rates for selected diagnosis categories from 1994 to 1998 are presented in Figure 10. It is important to note that the age-adjusted rates for the year 1994 presented in this report differ from the 1994 Annual Epidemiologic Surveillance Report due to the elimination of health conditions resulting from maternity leave.

The 30 percent decline in the number of reported absences from 1996 to 1997 continued with an additional 43 percent decline in 1998. The underreporting of 5-day absences that began in 1997 was the result of a change in health insurance companies and its impact seems to have continued into 1998.

The decrease in age-adjusted rates for all illness and injury categories was also noted for injury and respiratory conditions. The decline in the injury rates, according to Pantex health personnel, may be due to an increased

focus on safety at Pantex. The rates for heart/circulatory conditions and cancer among men and women have remained the same from 1994 to 1998.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Women and Men from 1994 to 1998



The age-adjusted rates of illness and injury by job category are shown in Figure 11. The Heavy Computer Users and Fire Department groups do not appear in this figure because they are new groups this year. Due to the small

number of Nuclear Specialties workers, they have been included in the Production Technicians category. There are 4 years of data for the Security workers, Production Technicians, and Material Handlers, as they were first added to the report in 1995. With the exception of the Service group, the rates for men in each job category peaked in 1996 and have declined steadily since. There is no consistent decline in the rates across the job categories among women, however, women in most job categories reported few diagnoses in 1998. With the exception of the Office Management and Administration, Technical Support, and Security groups, there were 10 or less diagnoses reported by women in a job category.

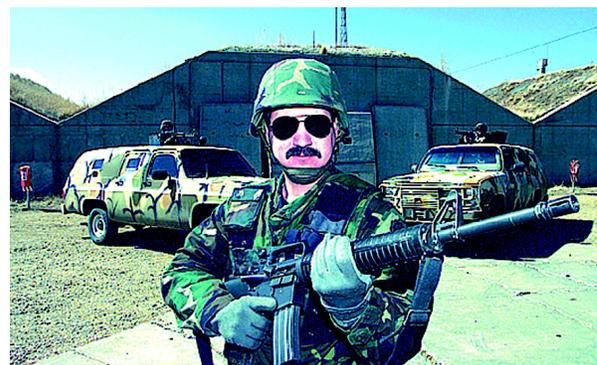
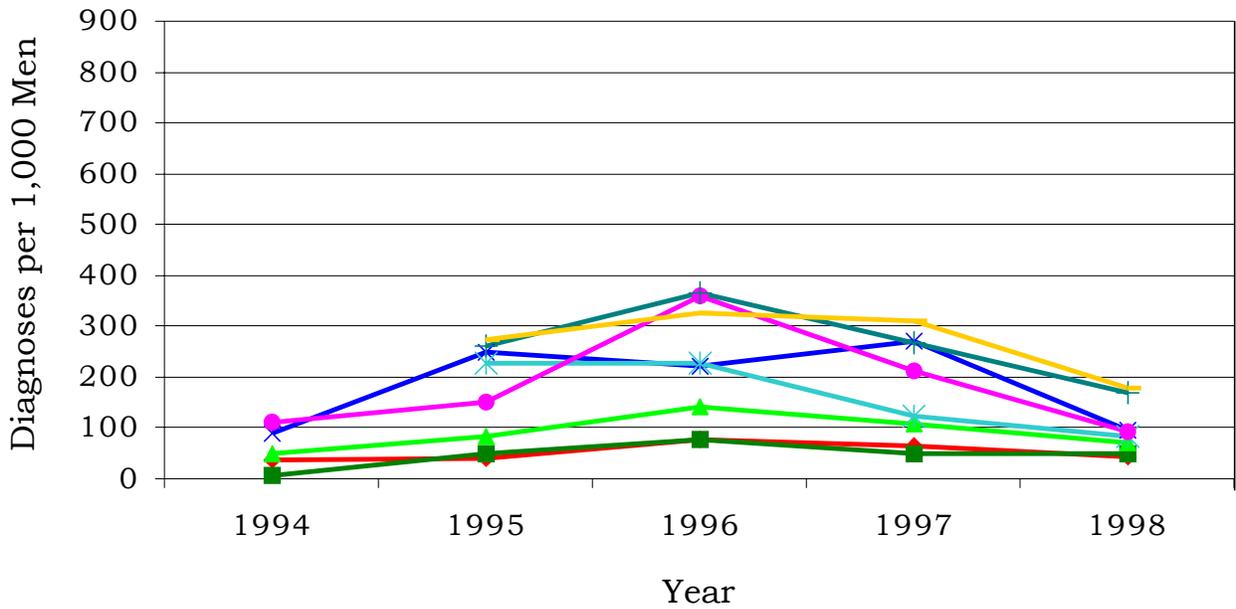
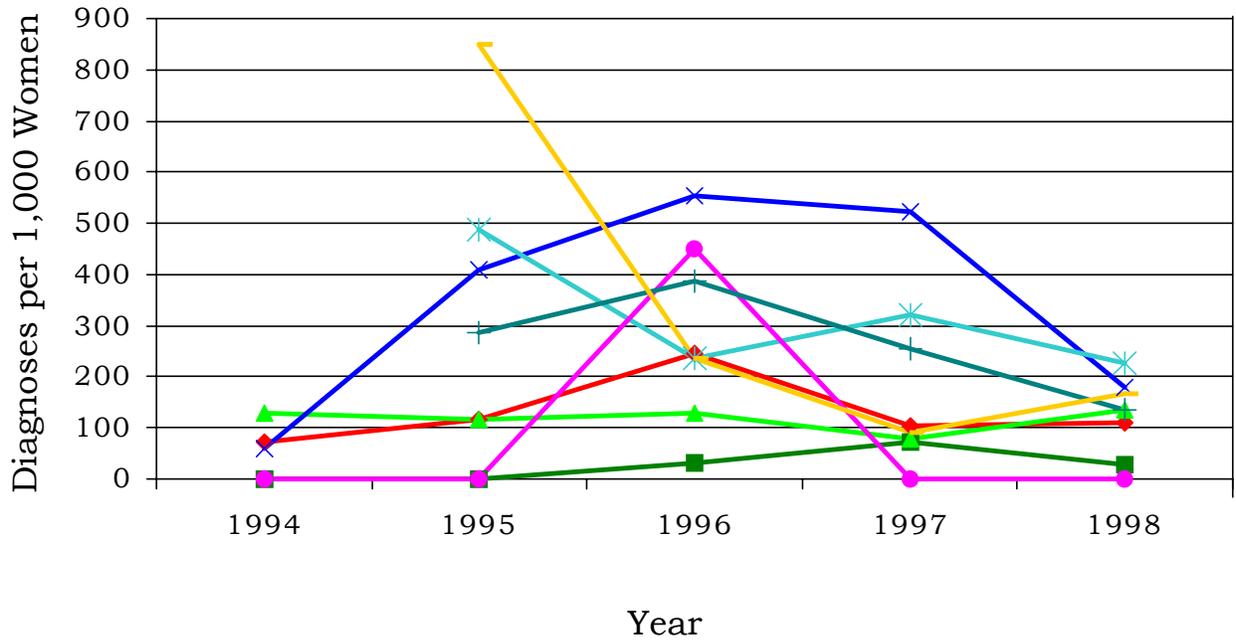


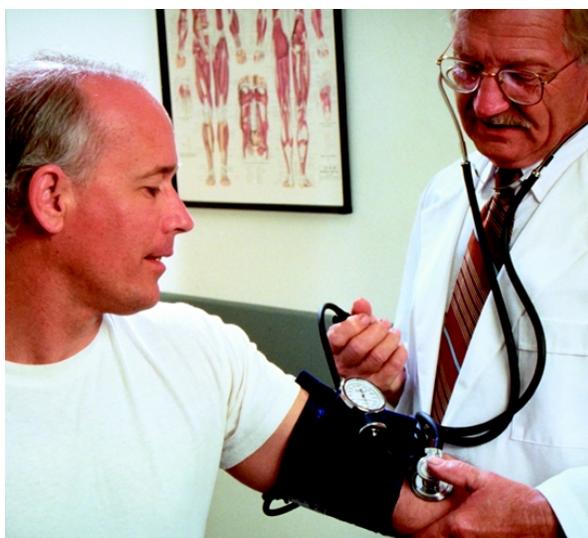
Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1998



- ◆ Office Management & Administration
- ▲ Technical Support
- * Security
- + Production Technicians
- Engineering/Scientific/Health Care
- × Service
- Craft & Repair
- Material Handlers

Sentinel Health Events for Occupations

A Sentinel health event for occupation (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of injury or illness among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been identified as sentinel health events (refer to the supporting tables).



Although sentinel health events may indicate an occupational exposure, many may result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in two categories:

Definite Sentinel Health Events: Diseases that are unlikely to occur in the absence of an occupational exposure. Asbestosis, a lung disease resulting from exposure to asbestos, is an example.

Possible Sentinel Health Events: Conditions such as lung cancer or carpal tunnel syndrome may or may not be related to occupation. Detailed occupational and non-occupational information is required to determine the work-relatedness of the illness. For example, lung cancer may result from asbestos exposure or smoking. Carpal tunnel syndrome may result from a job requiring typing or from a hobby such as playing the piano.

No definite sentinel health events were identified in 1998. Five of 293 diagnoses (2 percent) were identified as possible sentinel health events (Figure 12). Three of the five possible sentinel health events were identified as carpal tunnel syndrome, reported by three workers (two women and one man), resulting in 52 lost calendar days. Two (67 percent) of the carpal tunnel diagnoses were reported by workers in the Office of Management and Administration job category.

Figure 12. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	2	3	21	64
Total	2	3	21	64

Disabilities Among Active Workers

None were reported in 1998.

Deaths Among Active Workers

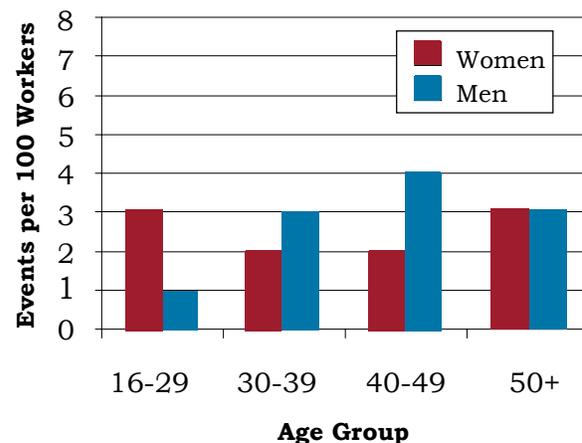
During 1998, five deaths occurred among Pantex workers (three women and two men). The deaths were due to cancer (one lung, one prostate), a heart attack, and injuries suffered in auto accidents.

OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses that have occurred among employees and to make that information available to OSHA on request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least two important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

The distribution of OSHA events by gender and age is shown in Figure 13. There were 18 OSHA-recordable events among women and 68 OSHA-recordable events among men. The rate of OSHA-recordable events was similar for men (3 per 100 workers) and women (2 per 100 workers). There was no apparent relationship between age and the number of lost or restricted workdays among men. Among women, the average number of lost or restricted workdays increased with age.

Figure 13. OSHA-Recordable Events by Gender and Age



The distribution of OSHA-recordable events by job category and gender is shown in Figure 14. Women in the Service, Security, and Production Technicians job categories had higher rates of OSHA-recordable events compared with men. Among female workers, the Security group had the highest rate of OSHA events (12 per 100 workers). Material Handlers had the highest rate of OSHA events among men (9 per 100).

The average number of workdays lost or with restricted activity due to an OSHA event was 75% higher for women (28 days) than for men (16 days). Service workers had the highest average number of lost or restricted workdays (123 days) among men and women (83 days) compared with other job categories. One male Service worker reported 19 lost workdays and 104 restricted workdays due to carpal tunnel syndrome. Two events among two female Service workers accounted for 166 restricted workdays. One woman reported 28 restricted days due to a sprain and strain of the upper limb and the other reported 138 restricted workdays due to a bruised knee.

Figure 14. OSHA-Recordable Events by Job Category and Gender

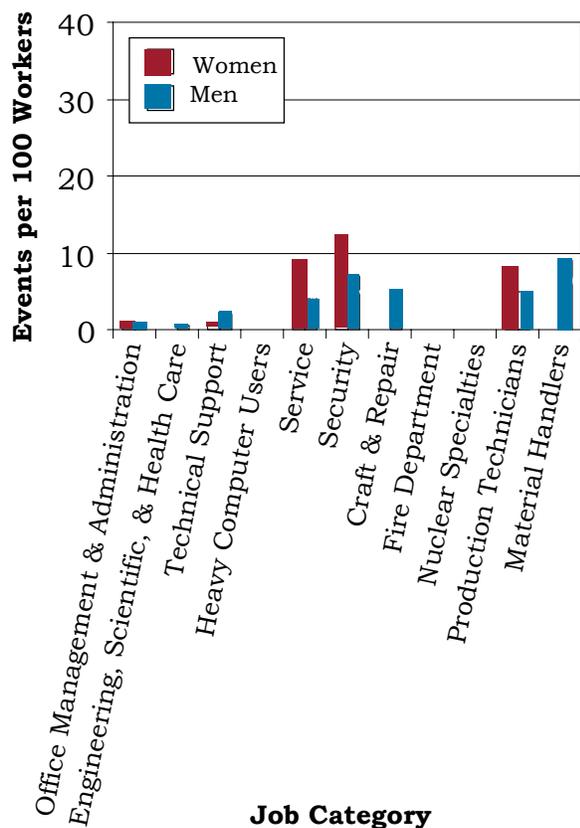


Figure 15. OSHA-Recordable Diagnoses by Diagnostic Category and Gender

Diagnostic Category	Gender	
	Women	Men
Muscles and Skeleton	2	6
Nervous System	2	3
Respiratory	0	1
Unspecified Symptoms	0	1
Injury	16	60
Fractures - Upper Limb	1	1
Back Sprains and Strains	3	8
Other Sprains and Strains	7	24
Open Wounds - Head, Neck, Trunk	0	2
Open Wounds - Upper Limb	1	7
Open Wounds - Lower Limb	0	3
Superficial Injuries	0	2
Bruises	2	6
Crushing Injuries	1	0
Foreign Bodies Entering Orifice	0	2
Unspecified Injuries	1	2
Adverse Reactions to External Causes	0	3

Diagnostic and Accident Categories for OSHA-Recordable Events

Eighty-six OSHA events were recorded on the OSHA 200 Logs, 20 diagnoses among women and 71 diagnoses among men as shown in Figure 15. Injuries accounted for 80 percent of the diagnoses reported by women, the most common (63 percent) being sprains and strains. Thirteen percent of the reported injuries among women were bruises. Among men, injuries accounted for 85 percent of the diagnoses reported, again primarily sprains and strains (53 percent). Open wounds (20 percent) and bruises (10 percent) were frequently reported OSHA-recordable events among men.

One of the 86 OSHA events was described as “an accident” in the OSHA logs (Figure 16). This accident was reported by a male Security worker, and involved an unspecified firearm. The worker sustained an open wound to the lower limb, resulting in 33 lost workdays and 120 restricted workdays.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Other Accidents	0	1
Firearm	0	1

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events for all diagnoses by age category, job category, and gender are shown in Figures 17 and 18. Women, especially workers 50 years and older, tended to have higher OSHA-recordable rates compared with men for most job categories. The OSHA-recordable rates among both men and women were highest among Service/Security/Craft and Repair/Fire Department workers and Nuclear Specialties/Production Technicians/Material Handlers. Most of the OSHA health conditions involved injuries. When the rate for OSHA-recordable injuries was considered separately, men tended to have higher rates, especially for workers under the age of 50. The same occupational groups had the highest rates for both men and women workers. These workers accounted for 40 percent of the work force and 78 percent of the OSHA-recordable events.

Security workers were 3 times more likely and Production Technicians and Material Handlers were more than 2 times as likely to suffer an injury compared to workers in other job categories.



Figure 17. OSHA-Recordable Rates by Age and Job Categories Among Women

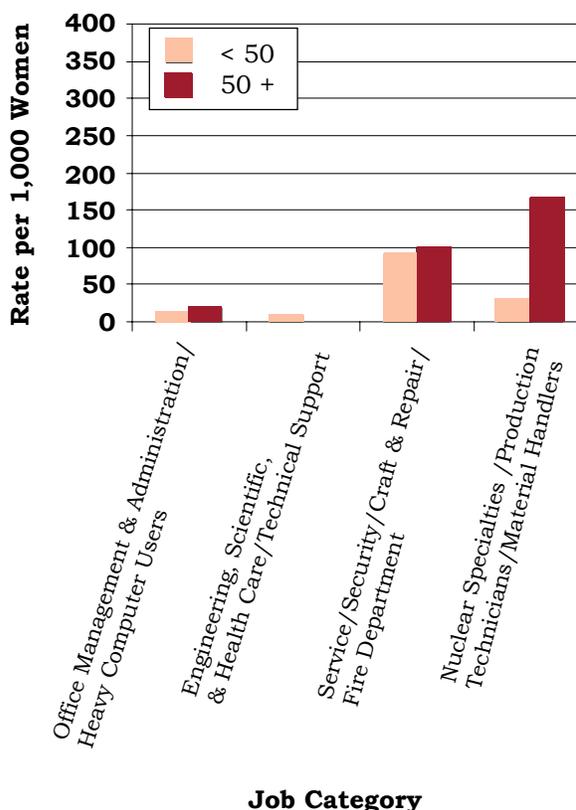
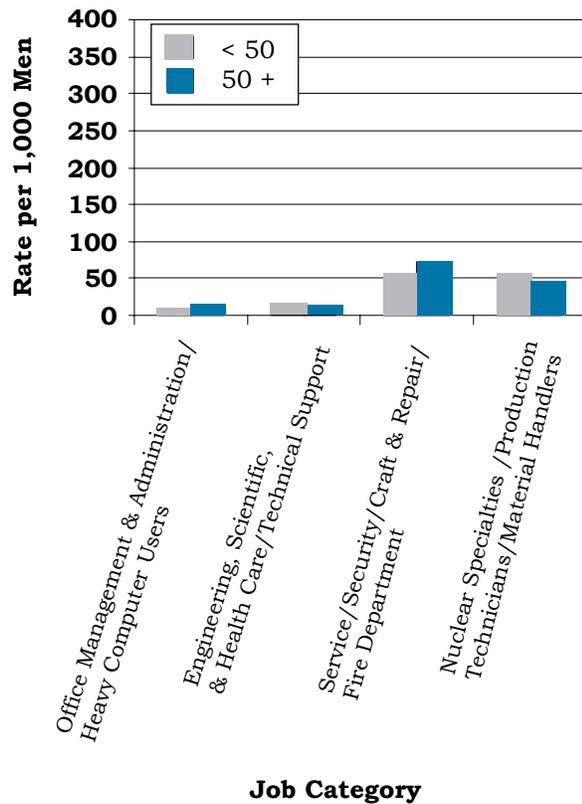
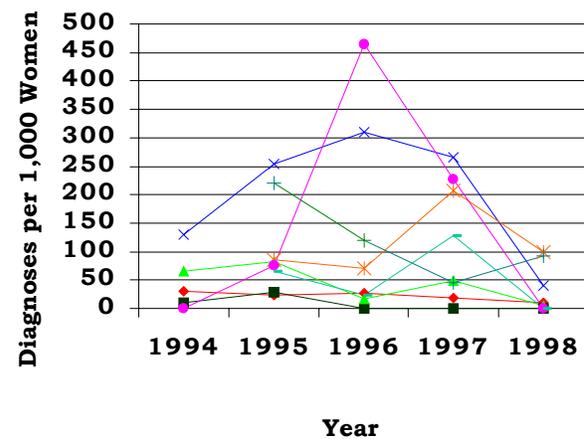


Figure 18. OSHA-Recordable Rates by Age and Job Categories Among Men



We will continue to examine these trends as more years of data are gathered. There were no significant changes in injury rates for men and women during this time period.

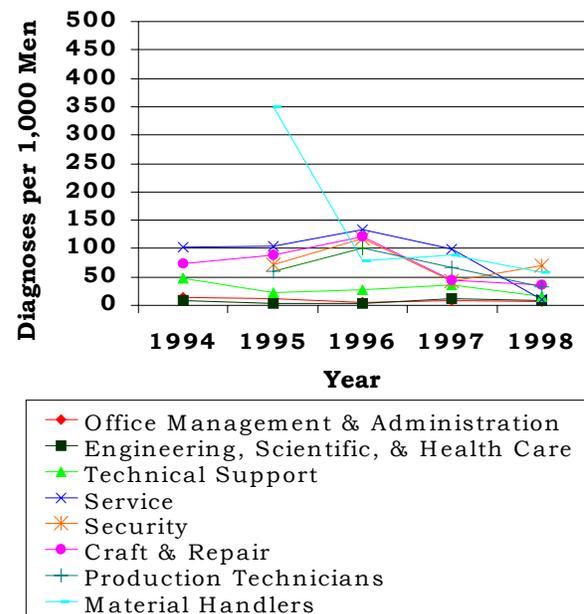
Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Among Women by Job Category from 1994 to 1998



Time Trends for OSHA-Recordable Events

The age-adjusted rates for OSHA-recordable events from 1994 to 1998 by job category among men and women are shown in Figures 19 and 20. Security workers, Production Technicians, and Material Handlers were categorized as part of other occupational groups prior to 1995; therefore, rates for these groups were not available. During the 5-year period, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of the occupational groups. The large changes in rates for women in Service, Craft and Repair, and Production Technicians reflect the small number of women in these job categories.

Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Among Men by Job Category from 1994 to 1998



Glossary

Adjustment: A mathematical procedure for rates in which the effects of differences of a characteristic (such as age or gender) between groups have been removed. The purpose of adjustment is to allow comparisons between two or more groups with the effect of the differences for the characteristic removed.

Age-Adjusted Rate: A rate that has been mathematically adjusted to account for the effects of differences in the age composition between groups.

Age-Specific Rate: A rate that is calculated for a specific age group (e.g., 16 to 29 years old). Only people in the specific age group are included in the calculation of the rate.

Confidence Interval: A range of values determined by the degree of random variability in the data. The width of the confidence interval is affected by the size of the group being studied and how often the event whose true value is sought occurs. Generally, as the size of the group or the frequency of the event increases, the width of the confidence interval decreases. The level of confidence, for example a 95 percent confidence level, indicates the percentage (e.g., 95 percent) of time that the true value is expected to fall within the confidence interval if the mathematical procedure is repeated 100 times.

Demographics: Characteristics of human populations related to their size, density, age distribution, and vital status.

Diagnosis (diagnoses): Identification of a disease or health condition from signs and symptoms.

Diagnosis Rate: The number of occurrences of a given disease or health condition observed during a given time period per the number of workers at risk of getting that disease during that time period. It is usually multiplied by 100 or 1,000 to produce a rate expressed as a convenient number.

Diagnostic Category: A particular type of disease, a group of related health conditions, or diseases that all affect the same organ system.

Epidemiologic Surveillance: The ongoing evaluation of the health of a human population which is based on the collection and interpretation of demographic and health information for that population.

Epidemiology: The study of the distribution and determinants of diseases and health conditions in human populations.

ICD-9-CM Code: An abbreviation for the *International Classification of Diseases, 9th Revision, Clinical Modification*. An internationally accepted standardized system for the classification of disease and health data collected from medical records.

OSHA: An acronym for the Occupational Safety and Health Administration.

OSHA Event: An abbreviation used throughout this report for an OSHA-recordable event.

OSHA-Recordable Event: An accident that occurs on the job and involves fatalities (regardless of time between injury and death), time lost from work, transfer of employment, medical treatment other than first aid, loss of consciousness, or restriction of work or motion. Also included is any diagnosed occupational health event reported to the employer that is neither fatal nor results in workdays lost. By law, these events are recordable in the OSHA 200 Log.

Person-Year: A unit of measurement combining the number of people being studied with the time that each was observed equivalent to one person followed for one year. For example, 5 persons followed for one year contribute five person-years, as do 10 people each followed for half a year.

Relative Risk: The ratio of the occurrence of a disease or health condition in one group compared to the rate of occurrence of that same disease or health condition in another group.

Explanation of Diagnostic Categories

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). For the text of this report the categories are abbreviated to make the report easier to read. The following table lists the abbreviated categories used throughout the annual report and the corresponding ICD-9-CM codes found in the supporting tables.

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine/Metabolic	240-279
Existing Birth Condition	740-759
Genitourinary	580-629
Heart/Circulatory	390-459
Infectious/Parasites	001-139
Injury	800-999
Miscarriage	630-676
Muscles and Skeleton	710-739
Nervous System	320-389
Psychological	290-319
Respiratory	460-519
Skin	680-709
Unspecified Symptoms	780-799

ICD-9-CM Codes

All conditions	001-V82	All reported health events
Infectious and parasitic diseases	001-139	Diseases caused by bacteria, viruses, and parasites
• Intestinal infections	001-009	Infections of the bowel or gut
• Tuberculosis	010-018	TB in the lungs and other organs
• Zoonotic bacterial diseases	020-027	Bacterial diseases that animals transmit to humans
• Other bacterial diseases	030-041	Whooping cough, diphtheria, strep throat, and gangrene
• Human Immunodeficiency Virus (HIV) infection	042	AIDS
• Poliomyelitis and other nonarthropod diseases of the central nervous system	045-049	Viral meningitis (swelling of the layers covering the brain and spinal cord); viral encephalitis (swelling of the brain); and polio
• Viral diseases accompanied by exanthem	050-057	Diseases accompanied by rashes or blisters like chickenpox, measles, shingles, and herpes
• Arthropod-borne viral diseases	060-066	Encephalitis (swelling of the brain) caused by bites from virus-carrying ticks or mosquitoes
• Other diseases caused by viruses and chlamydiae	070-079	Viral hepatitis, mumps, rabies, and mononucleosis
• Rickettsioses and other arthropod-borne diseases	080-088	Rocky Mountain spotted fever, malaria, and lyme disease
• Other spirochetal diseases	100-104	Trench mouth and Weil's disease (jaundice caused by coil-shaped bacteria)
• Mycoses	110-118	Athlete's foot; fungal infections of fingernails and toenails; and thrush
• Helminthiases	120-129	Pinworms, tapeworms, roundworms, whipworms
• Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites

• Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
Malignant neoplasms	140-208, 230-234	All cancers, regardless of the part of the body affected
• Lip, oral cavity, and pharynx	140-149	Lip, mouth, throat, and tongue
• Digestive organs and peritoneum	150-159	Stomach, esophagus (tube that transports food to the stomach), intestines, colon, rectum, anus, liver, pancreas, and gallbladder
• Respiratory system and intrathoracic organs	160-165	Sinuses, throat, voice box, lungs, and heart
• Bone, connective tissue, skin, and breast	170-176	Bone, muscle, ligament, tendon, blood vessels, fat, skin, and breast
• Genitourinary organs	179-189	Kidney, bladder, and cervix, ovary, uterus, and prostate
• Other and unspecified sites	190-199	Eye, brain, and thyroid
• Lymphatic and hematopoietic tissue	200-208	Leukemia, lymphoma, Hodgkin's disease, multiple myeloma, lymphosarcoma, and reticulum cell sarcoma
• Carcinoma in situ	230-234	A cancer that is confined to the site of origin (has not spread to neighboring tissue)
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature	210-229 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
Endocrine, nutritional, and metabolic diseases and disorders of the immune system	240-279	Diseases affecting the hormone secreting glands and organs. Overactive thyroid; underactive thyroid; vitamin deficiency; diabetes; gout; and problems affecting the antibody producing system
Disorders of the blood and blood forming organs	280-289	Anemia and hemophilia (excludes leukemia)

Mental disorders	290-319	Psychiatric diagnoses - Non-psychotic disorders: depression; anxiety, fear, and stress disorders; alcoholism; drug dependence; and eating disorders, such as anorexia; Psychotic disorders: dementia, schizophrenia, and manic depression
Diseases of the nervous system and sense organs	320-389	Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma
• Inflammatory diseases of the central nervous system	320-326	Bacterial meningitis (swelling of the layers covering the brain and spine); bacterial encephalitis (swelling of the brain); and brain and spinal abscesses
• Hereditary and degenerative diseases of the central nervous system	330-337	Alzheimer's and Parkinson's disease, tremors, and Huntington's chorea
• Other disorders of the central nervous system	340-349	Multiple sclerosis (MS), cerebral palsy, epilepsy, and migraine
• Disorders of the peripheral nervous system	350-359	Nerve disorders of the face, carpal tunnel syndrome, muscular dystrophy
• Disorders of the eye	360-379	Inflammation and ulcers of the eye and eyelid; detached retina; pink eye; problems with tear ducts; glaucoma; and cataracts
• Diseases of the ear and mastoid process	380-389	Infections of the outer, middle, or inner ear; ringing of the ears; hearing loss
Diseases of the circulatory system	390-459	Rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis
• Acute rheumatic fever	390-392	High fever and joint pain with possible heart damage
• Chronic rheumatic heart disease	393-398	Long lasting swelling and damage to the heart which results from rheumatic fever
• Hypertensive disease	401-405	High blood pressure

-
- Ischemic heart disease (Restricted blood flow to the heart) 410-414 Heart attack and angina
 - Diseases of pulmonary circulation 415-417 Blood clots in the lung and pulmonary aneurysm (bulge that develops in the wall of the pulmonary artery, which is the artery that carries blood to the lungs)
 - Other forms of heart disease 420-429 Swelling of the inner lining, middle lining, or sac enclosing the heart; heart failure; and irregular heartbeat
 - Cerebrovascular disease 430-438 Stroke, bleeding in the brain, and blockage or low blood flow in blood vessels of the brain
 - Diseases of the arteries and capillaries 440-448 Hardening of the arteries; aneurysm (bulge that develops in the walls of arteries); and blood clots
 - Diseases of the veins, lymphatics, and other circulatory system diseases 451-459 Phlebitis (swelling of a vein), thrombophlebitis (swelling of a vein which has a blood clot), varicose veins, and hemorrhoids

 - Diseases of the respiratory system** 460-519 Colds, sinusitis, laryngitis, pneumonia, influenza, chronic bronchitis, asthma, and emphysema
 - Acute respiratory infections 460-466 Colds, sore throat, sinus infections, swollen tonsils, and bronchitis
 - Other diseases of the upper respiratory tract 470-478 Allergies, hay fever, sinus infections, bronchitis, and sore throat that continue for a long time
 - Pneumonia and influenza 480-487 “The flu” and pneumonia caused by a bacteria or virus
 - Chronic obstructive pulmonary diseases and allied conditions 490-496 Emphysema and asthma
 - Pneumoconiosis and other lung diseases caused by external agents 500-508 Black lung; miners’ asthma; asbestosis; silicosis; berylliosis; and conditions caused by chemical fumes and vapors
 - Other diseases of the respiratory system 510-519 Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure

Diseases of the digestive system	520-579	Diseases affecting the teeth and mouth, salivary glands, digestive tract, and the abdominal cavity. Examples include dental abscess, ulcers, appendicitis, hepatitis (excluding viral hepatitis), cirrhosis of the liver, gallstones, pancreatitis, abdominal hernia, and intestinal polyps
• Diseases of the oral cavity, salivary glands, and jaw	520-529	Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue
• Diseases of the esophagus, stomach, and duodenum	530-537	Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting
• Appendicitis	540-543	Swelling of the appendix (rupture, surgery, or both may result)
• Hernia of the abdominal cavity	550-553	Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)
• Non-infectious enteritis and colitis	555-558	Crohn's disease and swelling of the intestine and colon
• Other diseases of the intestines and peritoneum	560-569	Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea
• Other diseases of the digestive system	570-579	Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
Diseases of the genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
• Nephritis, nephrotic syndrome, and nephrosis	580-589	Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure
• Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating

-
- Diseases of the male genital organs 600-608 Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
 - Disorders of the breast 610-611 Benign tumors, cysts, and infections of the breast
 - Inflammatory disease of the female pelvic organs 614-616 Swelling of the uterus, ovary, fallopian tubes, or cervix
 - Other diseases of the female genital tract 617-629 Conditions associated with menopause and postmenopause; PMS; infertility; and cramps

 - Complications of pregnancy, childbirth, and the puerperium** 630-676 Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
 - Ectopic and molar pregnancy 630-633 Development of fetus outside the uterus and growth of cysts
 - Other pregnancy with abortive outcome 634-639 Miscarriage and complications associated with miscarriage
 - Complications mainly related to pregnancy 640-648 Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
 - Normal delivery, and other indications for care in pregnancy, labor, and delivery 650-659 Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
 - Complications occurring mainly in the course of labor and delivery 660-669 Long labor; unusually fast delivery; and abnormal bleeding after delivery
 - Complications of the puerperium 670-676 Infections of the breast; blood clot in lung; and varicose veins

 - Diseases of the skin and subcutaneous tissue** 680-709 Acne, cellulitis, sunburn, psoriasis, and seborrhea
 - Infections of the skin and subcutaneous tissue 680-686 Abscesses, boils, hair-containing cysts, and pus-filled blisters

- Other inflammatory conditions of skin and subcutaneous tissue 690-698 Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine

- Other diseases of the skin and subcutaneous tissue 700-709 Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails

- Diseases of the musculoskeletal system and connective tissue** 710-739 Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc (“slipped disc”), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis

- Arthropathies and related disorders 710-719 Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones

- Dorsopathies 720-724 Swelling of the spine; herniated, slipped, and ruptured disc; rheumatoid arthritis of the spine; lumbago; and sciatica

- Rheumatism, excluding the back 725-729 Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis

- Osteopathies, chondropathies, and acquired musculoskeletal deformities 730-739 Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands

- Congenital anomalies** 740-759 Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter’s syndrome

- Certain conditions originating in the perinatal period** 760-779 Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice

- Symptoms, signs, and ill-defined conditions** 780-799 Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn

-
- Symptoms 780-789 Hallucinations, fainting, convulsions, dizziness, fatigue, fever, sleep disturbance, rash, headache, sore throat, chest pain, nausea, vomiting, and heartburn
 - Non-specific abnormal findings 790-796 Abnormal x-ray, blood, stool, and urine test results
 - Ill-defined and unknown causes of morbidity and mortality 797-799 Senility; asphyxia; respiratory arrest; nervousness; and unexplained death within 24 hours of onset of symptoms
 - Injury and poisoning** 800-999 Dislocation of joints; sprains and strains of associated muscles; concussions; bruises; cuts; internal injuries from crushing, puncture, tearing, or blunt impact; burns; blisters; poisoning; frostbite; heatstroke; and complications of medical or surgical care
 - Fractures, all sites 800-829 Cracks or breaks of any bone
 - Dislocations 830-839 Separation of a bone from its normal socket or joint
 - Sprains and strains of joints and adjacent muscles 840-848 Strains are injuries to muscle from overuse or stretching the muscle beyond its normal limit; sprains are injuries involving tearing or overextending the ligaments of a joint
 - Intracranial injuries excluding those with skull fractures 850-854 Concussions; internal bruises; and bleeding within the head without a fracture of the bones of the skull
 - Internal injuries of the thorax, abdomen, and pelvis 860-869 Bruising, crushing, tearing, or rupturing the chest, abdomen, and pelvis and the organs within these areas of the body
 - Open wounds 870-897 Animal bites; cuts; lacerations; punctures; and amputations, excluding the arteries and veins
 - Other injuries and late effects of external causes 900-999 Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place ("late effects"); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness

**Supplementary classifications
related to personal or family
history of disease**

V10-V19 Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness

**Supplementary classifications
related to health care for
reproduction and child
development**

V20-V28 Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child

**Contact with health services
for reasons other than illness
or injury**

V50-V59 Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

NOTES

NOTES